WHAT IS CLAIMED IS:

1. A method for synchronizing data frames in order to prevent transmission of a same data sequence as a flag sequence in a communication system in which a start and an end of each data frame having a data sequence to be transmitted are indicated using flags, and the flags have a sequence including a sequence of bits in which a value of the bit is sequentially continued up to a predetermined number, the method comprising the steps of:

classifying the data sequence into N unit data sequences having a predetermined bit number and inputting an nth unit data sequence to be checked from among the N unit data sequences into a predetermined table as indices; and

outputting output data sequences from the table in correspondence to the indices together with at least one attribute, the output data sequences having dummy bits which are alternatively inserted into the unit data sequences, the at least one attribute indicating a number of the bit values which are sequentially continued starting from a most significant bit (MSB) of the output data sequence, the indices including an attribute output from the table with respect to an $n-1^{th}$ unit data sequence.

2. The method according to claim 1, wherein the table stores the output data sequences having alternatively inserted dummy bits, values of the attributes corresponding to all possible unit data sequences, and a set of all values for which the attributes allow.

3. The method according to claim 1, further comprising the steps of:

forming a temporary output data sequence from the output data sequence for the nth unit data sequence; and

classifying the temporary output data sequence into an output unit data sequence having a predetermined bit number and into a remaining data sequence,

wherein the temporary output data sequence includes a remaining data sequence for the n-1th unit data sequence.

4.   The method according to claim 3, further comprising the step of re-classifying the remaining data sequence into an output unit data sequence having the predetermined bit number and a new remaining data sequence, when the bit number of the remaining data sequence is greater than the predetermined bit number.

5.   A method for synchronizing received data frames in a communication system in which a start and an end of each data frame having a data sequence are indicated using a flag, and the flag has a sequence including a sequence of bits in which a value of the bit is sequentially continued up to a predetermined number, the method comprising the steps of:

classifying a received data sequence into N unit data sequences having a predetermined bit number;

defining at least one attribute of an n-1th unit data sequence from among the N unit data sequences, the at least one attribute indicating a number of the bit values which are sequentially continued starting from a most significant bit (MSB) of the corresponding unit data sequence; and

inputting attributes of an nth unit data sequence and the n-1th unit data sequence into a table, and outputting attributes of the corresponding output data sequence and the nth unit data sequence.

6.   The method according to claim 5, wherein the table stores the output data sequences in which alternatively inserted dummy bits are removed, the corresponding attributes of all possible unit data sequences, and a set of values of the attributes.

7.   The method according to claim 5, further comprising the steps

of:

forming a temporary output data sequence from the output data sequence for the nth unit data sequence; and

classifying the temporary output data sequence into an output unit data

5 sequence constituted by the predetermined bit number and into a remaining data sequence,

wherein the temporary output data sequence includes a remaining data sequence for the $n-1^{th}$ unit data sequence.

10   8.   The method according to claim 7, further comprising the step of re-classifying the remaining data sequence into an output unit data sequence having the predetermined bit number and a new remaining data sequence, when the bit number of the remaining data sequence is greater than the predetermined bit number.

15

9.   A method for synchronizing data frames in a communication system in which a start and an end of each data frame having a data sequence to be transmitted are indicated using flags having a predetermined sequence, the method comprising the steps of:

20   classifying the data sequence into a plurality of unit data sequences having a predetermined bit number, and sequentially inputting the unit data sequences into a predetermined table as indices;

outputting output data sequences from the table in correspondence to the indices, the output data sequences having dummy bits which are alternatively

25 inserted; and

forming the data frame from the output data sequences, and attaching the flags to front and rear ends of the data frame, respectively.

10.   The method according to claim 9, wherein the table stores the

30 output data sequences having alternatively inserted dummy bits in

correspondence to all possible unit data sequences in order to prevent at least one data sequence having a same sequence as a sequence of the flag from being transmitted.

5   11.   The method according to claim 10, wherein the sequence of the flag contains a bit sequence in which a predetermined value of the bit is sequentially continued up to a predetermined number.

12.   The method according to claim 11, wherein the table stores the

10   number of the predetermined bit values which are sequentially continued starting from a most significant bit of the output data sequence as values of the attributes of each output data sequence.

13.   The method according to claim 12, wherein the indices include

15   the values of the attributes.

14.   The method according to claim 9, further comprising the steps of:

forming a temporary output data sequence from the output data

20   sequence; and

forming the temporary output data sequence into an output unit data sequence having a predetermined bit number and into a remaining data sequence; and

connecting the remaining data sequence to a next output data sequence

25   output sequentially, and forming a temporary output data sequence for the next output data sequence.

15.   The method according to claim 14, further comprising the step of re-forming the remaining data sequence into an output unit data sequence and a

30   new remaining data sequence, when the bit number of the remaining data

sequence is greater than the predetermined bit number.

16.   A method for receiving and synchronizing data frames in a communication system in which a start and an end of each data frame having a
5   data sequence are indicated using flags having a predetermined sequence, and dummy bits are alternatively inserted into data sequences of the data frames to prevent a data sequence having a same sequence as the flag sequence from being transmitted, the method comprising the steps of:

classifying a received data sequence into a plurality of unit data
10   sequences having a predetermined bit number; and

sequentially inputting the unit data sequences into a predetermined table, and sequentially outputting the output data sequences from which the dummy bits are removed from the table in correspondence to the input unit data sequences.
15

17.   The method according to claim 16, wherein the table stores the output data sequences from which the dummy bits are removed in correspondence to all possible unit data sequences.

20   18.   The method according to claim 17, wherein the sequence of the flag contains a bit sequence in which a predetermined value of the bit is sequentially continued up to a predetermined number.

. 19.   The method according to claim 18, wherein the table stores the
25   number of the predetermined bit values which are sequentially continued starting from a most significant bit of the output data sequence as values of attributes of each output data sequence.

. 20.   The method according to claim 19, wherein the values of the
30   attributes are included in indices of the table.

22

21.   The method according to claim 16, further comprising the steps of:

forming a temporary output data sequence from the output data
5 sequences;

forming the temporary output data sequence into an output unit data sequence having a predetermined bit number and into a remaining data sequence; and

connecting the remaining data sequence to a next output data sequence
10 output sequentially, and forming a temporary output data sequence for the next output data sequence.

22.   The method according to claim 21, further comprising the step of re-forming the remaining data sequence into an output unit data sequence and a
15 new remaining data sequence, when the bit number of the remaining data sequence is greater than the predetermined bit number.